

REMARKS

Claims 1-38 remain in the application. The office action indicates that claims 1-7 are allowed and that claims 18 and 19 would be allowable if rewritten in independent form including all base claim limitations and any intervening claim limitations. The applicant has rewritten claim 18 accordingly. Therefore claim 18, as amended, and dependent claim 19 are allowable. The applicant has overcome all remaining objections and rejections against the subject application, as is more fully set forth below.

The Office Action maintains its rejection of claim 8 under 35 U.S.C. § 103(a) as being unpatentable over Pepper et al. According to the previous Office Action, Pepper et al. disclose the claimed process for making carbon fibers except for providing a furnace that includes both a carbonization heating zone and a stabilization heating zone. The Action states that it would have been obvious to relocate the Pepper et al. carbonization heating zone inside the Pepper et al. furnace that includes stabilization heating zones "to save space and capital costs". The previous Office Action went on to say that using a single furnace for both stabilization and carbonization would be obvious because, according to *In re Japikse*, 86 USPQ 70, "the rearrangement of locations of parts is obvious to one of ordinary skill".

Responding to the previous Office Action the Applicant argued that the *In re Japikse* rule doesn't apply under the present facts because shifting the carbonization heating zone into the same furnace as the stabilization heating zone necessitates changes both in the claimed process and in the operation of the furnace. The present Office Action now responds to this argument by holding that "the relocation of the carbonization heating zone from one furnace to another does not change *the process of carbonization*".

The applicant maintains that the holding of *In re Japikse* does not require that every process recited in a claim be changed. As such, even if claim 8 doesn't recite a

change in the process of carbonization itself, the consolidation of stabilization and carbonization processes into a single furnace does represent a significant change in the overall method for making carbon fibers that the claim recites. The claimed method includes the process of carbonization, but also includes providing a precursor fiber, providing a furnace configured to heat the fiber for both stabilization and carbonization of the fiber, and stabilizing and carbonizing the fiber in a single continuous process that includes drawing the fiber continuously through the furnace by engaging and applying a continuous pulling force to the fiber from outside the furnace. This overall claimed process represents a significant change from processes disclosed in the prior art. Rather than just moving a switch that initiates a process as in *In re Japikse*, the claimed process consolidates stabilization and carbonization processes into a single furnace.

In addition, *In re Japikse* doesn't require a change of process. Instead, the *In re Japikse* board held that there's no invention in shifting the position of a part if *the operation of the device* would not be thereby modified. Here, even if the process of carbonization hasn't changed, the operation of the device has. Consolidating stabilization and carbonization in a single furnace IS a change in the *operation of the device*. Having adapted a furnace to perform an additional process, one could not truthfully or accurately say that the operation of the furnace has not changed. The furnace was used just to stabilize fibers. Now it stabilizes AND carbonizes.

There's no indication that the Board in *In re Japikse* intended that it's holding be used to justify rejections of claims whenever such claims depend for novelty on the repositioning of a process relative to the prior art. It would be inappropriate to extend this ruling to all situations where, as here, a relocated process hasn't changed. Just because a relocated process hasn't changed doesn't mean that its relocation hasn't changed the operation of the device.

Neither is there any indication that the Board in *In re Japikse* intended that it's holding be used as a *per se* rule of patentability. *Even if* it could reasonably be said that the operation of the device isn't modified by consolidating stabilization and

carbonization in a single furnace, "[t]he mere fact that a worker in the art could rearrange the parts of the reference device to meet the terms of the claims on appeal is not by itself sufficient to support a finding of obviousness. The prior art must provide a motivation or reason for the worker in the art, without the benefit of appellant's specification, to make the necessary changes in the reference device." *Ex parte* Chicago Rawhide Mfg. Co., 223 USPQ 351, 353 (Bd. Pat. App. & Inter. 1984). The Office Action identifies no such motivation.

The Applicant has also argued, with regard to claim 8, that the Office Action doesn't properly support its obviousness determination. The Office Action responds to this argument by stating that a limitation need only be obvious to one of ordinary skill and need not be explicitly taught in the reference.

It's well settled that, to support an obviousness determination, you must show why a skilled person, confronted with the same problem as the inventor and with no knowledge of the claimed invention, would select the elements from the cited prior art references for combination in the manner claimed. To help prevent examiners' use of hindsight-type analyses in these situations, the courts have held that an examiner, to support an obviousness finding, must show a motivation to combine the references that create the case of nonobviousness. See, e.g., *In re Rouffet*, 47 U.S.P.Q.2d 1453, 1457-1458 (Fed. Cir. 1998). This motivation to combine may be found either in prior art teachings, the knowledge of persons of ordinary skill in the art, or in the nature of the problem solved. *Id.* at 1458. In *In re Rouffet*, the Board relied upon none of these. Rather, the Board relied on the high level of skill in the art as evidence of likely motivation. The Federal Circuit reversed the Board's finding of obviousness. Similarly, the present Office Action relies on the recitation of *advantages* that the incorporation of a controller and a pump would realize, i.e., the ability "to control engaging and releasing frictional engagement elements automatically" and allowing one "to shorten the oil passages between the oil pump and the valve body". However, while the level of skill in the art is at least part of the judicially defined inquiry for a suggestion to combine, the ability to identify or think up an advantage is not. If the ability to identify or think up an advantage were alone sufficient to supply a

motivation to combine, then, because there is at least some advantage to almost all claimed combinations, the test would be useless to preclude hindsight analyses. The PTO could routinely identify claimed elements in the prior art, observe that there was an advantage in combining them as the applicant has claimed, and simply reject the claims on that basis. The mere existence of an advantage would thereby almost always prevent patentable inventions.

Although the Action is correct in noting that motivation need not be found by identifying an *explicit* teaching or suggestion in all cases, it's not enough to simply identify an advantage. There must at least be some *implicit* teaching or suggestion in the prior art or general knowledge that would have motivated one skilled in the art to combine the references. *In re Oetiker*, 24 USPQ2d 1443, 1446-1447 (Fed. Cir. 1992); *In re Rouffet* at 1458 (motivation may be found in "the nature of the problem to be solved . . ."). To show that there's an implicit suggestion, the Examiner must show that one skilled in the art would know to use a prior art teaching to solve the problem that the Applicant sought to solve through the invention in question. *In re Oetiker* at 1446-1447. For this to be the case the problem that the invention solves must be the same as or at least similar to the problem that the prior art teaching solves. Here, again, it's not sufficient to merely identify an advantage that the combination would realize.

To properly support his obviousness determination and present a *prima facie* case for obviousness the Examiner should have shown why a skilled person, confronted with the same problem as the inventor and with no knowledge of the claimed invention, would select the elements from the cited prior art references and combine them in the manner claimed. To do this, the Examiner should have identified some teaching or suggestion in the prior art (or generally available knowledge) that would *explicitly* motivate such a person to combine the references, *See e.g. In re Oetiker*, 24 USPQ2d 1443, 1446-1447 (Fed. Cir. 1992); *In re Geiger*, 2 USPQ2d 1276, 1278 (Fed. Cir. 1987). If unable to identify an explicit teaching or suggestion, the Examiner should have identified an *implicit* teaching by showing that one skilled in the art would know to use an existing teaching to solve another problem that's the

same as or similar to the problem that the teaching addresses. *In re Oetiker*, 24 USPQ2d 1443, 1446-1447 (Fed. Cir. 1992).

The Applicant maintains that no such motivation, either explicit or implicit, exists in the prior art or general knowledge. For all the above reasons, the Applicant maintains that claim 8 is patentable over Pepper et al.

The Office Action maintains the rejection of claims 9, 13-17, 20-24, and 27 under 35 U.S.C. § 103(a) as being unpatentable over Pepper et al. taken with Uchida et al.

Regarding claim 9, the previous Office Action noted that Pepper et al. disclose a stabilization process that may be accomplished using "a series of separate furnaces with one or more heating zones" as recited in claim 9. In response, the Applicant argued that claim 9 *also* recites "continuously carbonizing the stabilized fiber by further heating the fiber in an oxidizing environment as it is drawn through the heating chamber of a final one of the plurality of furnaces", and that while Uchida et al. teach that carbonization can occur in an oxidizing process, neither the references nor general knowledge include any teaching or suggestion that would motivate one skilled in the art to combine these processes to arrive at the invention of claim 9.

The present Office Action argues, in turn, that a limitation need only be obvious to one of ordinary skill and that it need not be explicitly taught in the reference. The Applicant agrees. However, as the Applicant argues, above, the Office Action must support such a determination by presenting a *prima facie* case for obviousness by showing why a skilled person, confronted with the same problem as the inventor and with no knowledge of the claimed invention, would select the elements from the cited prior art references and combine them in the manner claimed. To do this, the Examiner must identify some explicit or implicit teaching or suggestion in the prior art (or generally available knowledge) that would motivate such a person to combine the references.

In any event, the Applicant maintains that there is no explicit or implicit motivation in the prior art or general knowledge to support this obviousness rejection, and claim 9 is patentable over Pepper et al. taken with Uchida et al.

The Applicant again maintains that claim 13 is allowable because it depends from an allowable base claim.

As with the previous Office Action, the present Office Action doesn't specifically refer to claim 14. Neither does the present Office Action respond to the Applicant's previous argument that claim 14 is allowable on the same basis argued with respect to claim 3.

Neither does the present Office Action respond to the Applicant's arguments regarding claims 15-17, i.e., that Pepper et al. don't teach the precise temperatures and exposure times recited in claims 15 and 16 nor the introduction of ambient air into *each* furnace as recited in claim 17. For these same reasons, and because these claims all depend from an allowable base claim, the Applicant once again maintains that claims 15-17 are patentable over Pepper et al.

In responding to the previous Office Action, the Applicant objected to the Action's apparent failure to provide any reason for rejecting claims 20 and 21. According to the present Office Action, and apparently with regard to claim 20, the following statement at the bottom of page 4 of the previous Office Action was intended to serve as a reason for the rejection: "Pepper et al. also teach the graphitization of the carbonized fibers". In response, the Applicant notes that claim 20 also recites further graphitizing the fiber by adding additional furnaces operating at higher temperatures. Pepper et al. doesn't teach or suggest adding additional furnaces, nor the operation of those furnaces at higher temperatures. For this reason, and because claim 20 depends from an allowable base claim, the Applicant maintains that claim 20 is patentable over Pepper et al.

The present Action additionally notes that claim 21 is drawn toward optimization of a known process and was therefore rejected “under the reasoning of *In re Boesch*”. In response, the Applicant notes that claim 21 recites the additional step of adjusting fiber draw rate to optimize the stabilization and carbonization processes. However, the holding in *In re Boesch* is that “discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art”. *In re Boesch* at 219. Claim 21 doesn’t claim an optimum value or its discovery. Claim 21 claims the adjustment of the fiber draw rate. *In re Boesch* doesn’t render obvious all claims that recite a structure or method that *results* in the optimization of a process, only claims that recite the optimum value itself. For this reason, and because claim 21 depends from an allowable base claim, the Applicant maintains that claim 21 is patentable over Pepper et al.

In response to the Applicant’s request that the Examiner explain the previous Office Action’s argument that the limitations of claims 22 and 23 are “expected”, the present Office Action explains that Pepper discloses both a multi-zone furnace and a series of separate furnaces and that “it is expected that a multizone furnace is a single enclosed body, whereas it is expected that a series of separate furnaces be composed of individually enclosed bodies, because this is what these words mean.” The Applicant agrees that one would expect a multizone furnace to include a single enclosed body and that one would expect a series of separate furnaces to include individual enclosed bodies. However, claims 9, 22, and 23 don’t recite a “single enclosed body”, or “individually enclosed bodies”. Instead, claim 22 recites the step of spacing apart at least two adjacent furnaces and exposing the fiber to ambient air between the spaced-apart furnaces. Pepper doesn’t disclose and one skilled in the art would not necessarily expect that two adjacent furnaces in a series of separate furnaces would be spaced apart, or that a fiber being drawn through them would necessarily be either exposed (claim 22) or enclosed (claim 23) as it runs between those two adjacent furnaces. For this reason, and because claims 22 and 23 depend from an allowable base claim, the Applicant maintains that claims 22 and 23 are patentable over Pepper.

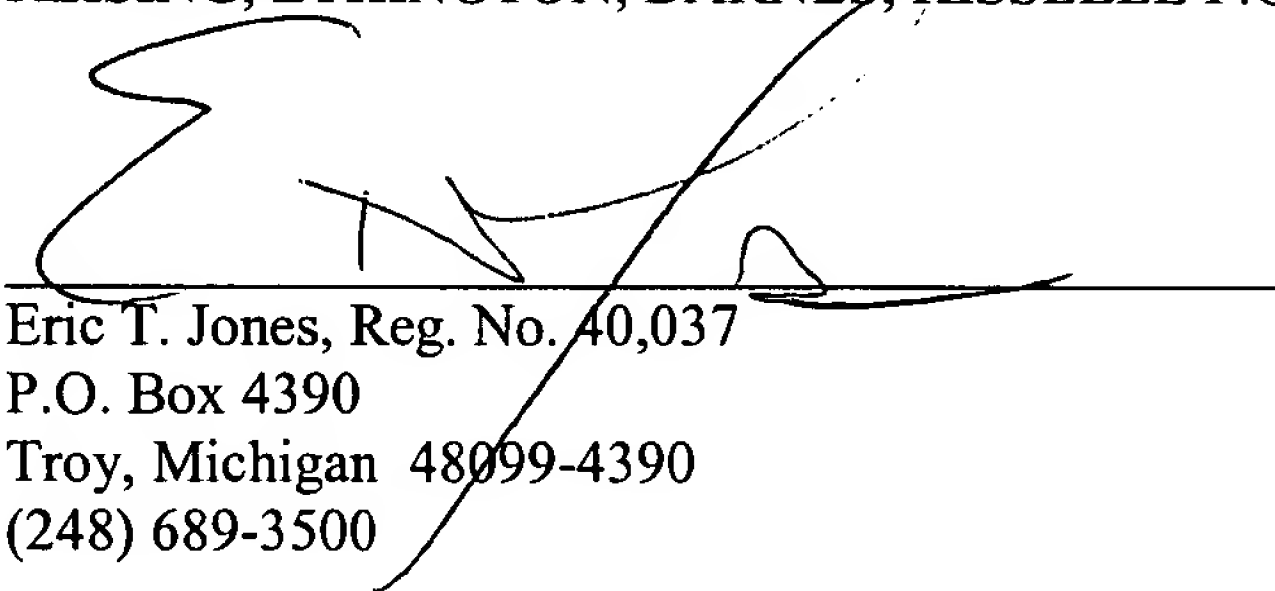
Claims 10-12 and 24-27 are allowable because they depend from an allowable base claim.

Claims 1-38 recite patentable subject matter and are allowable. Therefore, the applicant respectfully submits that the application is now in condition for allowance and respectfully solicits such allowance. Please enter the amendment under the provisions of 37 CFR §1.116 and reconsider claims 1-16 in view of the foregoing amendments and remarks.

I authorize the Assistant Commissioner to charge any deficiencies, or credit any overpayment associated with this communication to Deposit Account No. 50-0852. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

REISING, ETHINGTON, BARNES, KISSELLE P.C.



Eric T. Jones, Reg. No. 40,037
P.O. Box 4390
Troy, Michigan 48099-4390
(248) 689-3500

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